SUICIDE & SELF-INFLICTED INJURIES IN MASSACHUSETTS

1999-2000

Injury Surveillance Program
Bureau of Health Statistics, Research & Evaluation
Injury Prevention and Control Program
Bureau of Family and Community Health
Massachusetts Department of Public Health

May 2003

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SELF-INFLICTED INJURIES
IN
MASSACHUSETTS

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May 2003

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For consistency purposes, selected language in the Appendix are taken from previous publications produced by the Bureau of Health Statistics, Research and Evaluation.

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For information on how to prevent injuries, contact Cindy Rodgers at the Injury Prevention and Control Program (617-624-5424), or on-line at:
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Executive Summary

Suicide is a significant public health problem in Massachusetts, taking over 400 lives each year. In the years 1999-2000, suicides were approximately three times as frequent as homicides. Males completed suicide more frequently than females, but females were more likely to attempt suicide. The suicide rate for males dropped 10% between 1999 and 2000, from 12.5 to 11.2 per 100,000/year, while the rate for females remained relatively stable (3.5 and 3.7 per 100,000/year, respectively). Suicide rates were highest for those between the ages of 35 and 44 years (average annual rate of 9.8/100,000).

Hospitalization rates for non-fatal self-inflicted injuries have increased 17% between 1999 and 2000, from 61.6 to 72.3 per 100,000/year. In the years 1999-2000 there were an average of 3,695 hospital discharges and 829 observation stays for self-inflicted injuries. Rates for non-fatal self-inflicted injury hospitalizations were highest for Massachusetts residents between the ages of 15 and 44 years and for females. Overall, for every suicide, there were 11 hospitalizations[1] and an estimated 16 emergency department visits for non-fatal self-inflicted injury among Massachusetts residents age 10 and older.

Suffocation (including hanging) and firearms were the most common methods used to complete suicide (35% and 27%, respectively), while poisoning was the most common cause of non-fatal self-inflicted injuries (78%). Among racial groups, white non-Hispanics had the highest rate for deaths (7.9 per 100,000/year), while black non-Hispanics had the highest hospital discharge[2] rate (76.5 per 100,000/year), as compared to other racial groups.

Data Highlights: Suicide and self-inflicted injury among Massachusetts residents, 10+ years, 1999-2000*

	Deaths	Hospital Discharges	Observation Stays	Estimated Emergency Department Visits
Mean Annual Frequency	416	3695	829	6799
Mean Annual Rate	7.5 per 100,000	66.9 per 100,000	15.0 per 100,000	123.2 per 100,000
Most common method	Suffocation (35%)	Poisoning (78%)	Poisoning (90%)	Poisoning (69%)
Sex associated with highest rates[3]	Males	Females	Females	Females
Age Group associated with highest rates (years)	35-44	15-24	15-24	15-24
Race/Ethnicity group associated with highest rates	White, non Hispanic	Black, non Hispanic	Not reported[4]	Not reported[5]

[1] Includes hospitalization data and observation bed stay data

[2] Hospital discharges include cases admitted to and discharged from an acute care hospital in MA and excludes cases captured in the observation stay database

[3] Rate per 100,000, Census 2000 populations used in rate calculations

[4] Rates by race/ethnicity for observation stay data are not reported due to low number for certain race/ethnicity groups

[5] Rates by race/ethnicity for ED data are not reported due to potential sample bias

*Data Sources: MA Registry of Vital Records and Statistics, MDPH; MA Hospital Discharge Database, MA Division of Health Care Finance and Policy; MA Outpatient Observation Database, MA Division of Health Care Finance and Policy; MA Emergency Department Injury Surveillance System, MDPH

According to the Massachusetts Youth Risk Behavior Survey (MYRBS), a survey of high school students conducted by the Massachusetts Department of Education in collaboration with the U.S. Centers for Disease Control and Prevention (CDC), reported suicidal thoughts and plans have decreased from 1995 to 2001 (from 25.8% to 20.1% and from 18.8% to 15.2%, respectively). Reported suicide attempts among youth have increased slightly from 8.3% in 1999 to 9.6% in 2000.

It is important to note that data on suicide and self-inflicted are not complete. Social stigma and incomplete information about intentionality result in under-reporting of self-inflicted injuries and deaths. Furthermore, data collection systems for nonfatal injury are limited to acute care hospitals. Patients treated in psychiatric facilities, Veteran's Administration hospitals, correctional facilities, or by health professionals outside of a hospital setting are not included in the data presented.

Suicide can be prevented. In 2001, the U.S. Surgeon General set forth a national strategy for suicide prevention based on advances in science and public health. Recognizing the importance of data, the expansion of suicide surveillance systems is a national goal. This updated report (original report published in May 2001) is designed to provide an overview of the problem to prevention groups, elected officials, clinicians, and others with an interest in preventing suicide and self-inflicted injuries in the Commonwealth, and assist them in their efforts to prevent these tragic events.

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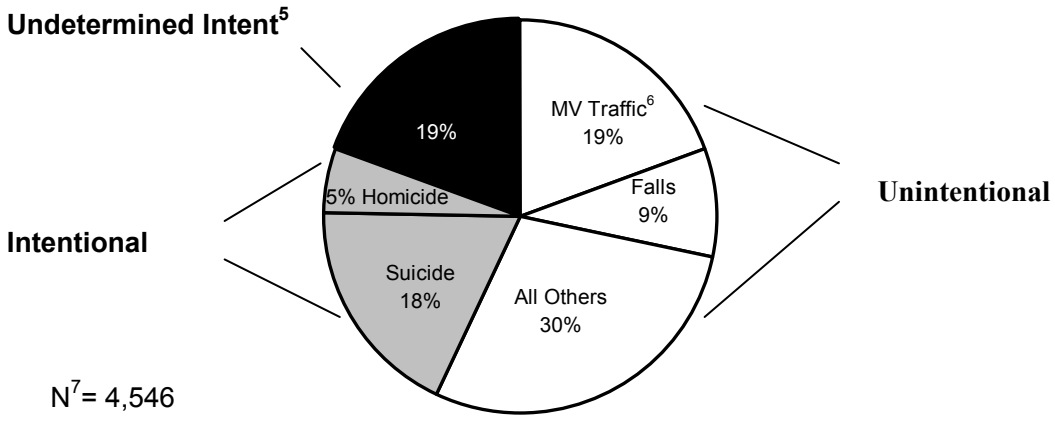
Introduction to Suicide and Self-Inflicted Injury

Suicide is a serious public health problem. Each year there are approximately 30,000 deaths in the United States from suicide. Nationwide in 2000, suicide was the eleventh leading cause of death overall and the third leading cause of death for young people between the ages of 15 and 24[1]. Far more Americans die each year from suicide than homicide (29,350 compared to 16,765 in 2000).[2] Moreover, an additional 650,000 individuals seek emergency medical care each year following a self-inflicted injury.[3] This report provides an updated overview of suicides and self-inflicted injuries in Massachusetts, describing the magnitude of the problem, trends, and high risk populations. It also provides some insight into the circumstances of these injuries.

Between 1999 and 2000 suicide accounted for almost one-fifth (18%) of all injury deaths for those over age ten in Massachusetts. Moreover, 19% of injury deaths were categorized as injuries of undetermined intent, a portion of which may also include suicides (Figure 1).

Figure 1. Total injury deaths[4] by intent, Massachusetts residents, ages 10+ years, 1999-2000



Data Source: Registry of Vital Records and Statistics, MA Department of Public Health

Suicides and self-inflicted injuries may also be classified as unintentional when there is inaccurate or inadequate information with regard to intent. Thus, incomplete circumstantial evidence and a variety of social factors, such as social stigma surrounding self-injury, may lead to under-reporting of the number of suicides and self-inflicted injuries. Table 1 shows the

[1] Centers for Disease Control and Prevention--www.cdc.gov/ncipc/factsheets/suifacts.htm
[2] All ages included
[2] National Strategy for Suicide Prevention: Goals and Objectives for Action, U.S. Dept. of Health and Human Services, 2001.
[4] Excludes deaths caused by legal intervention
[5] Undetermined intent includes deaths where the medical examiner was unable to determine whether the manner of death was unintentional or intentional
[6] Motor vehicle traffic deaths to occupants, pedestrians, motorcyclists and bicyclists
[7] Total number of injury deaths, age 10 and over, 1999-2000, excluding deaths by legal intervention/war

leading causes of injury death by intent—unintentional, suicide, homicide, and undetermined intent—among Massachusetts residents between 1999 and 2000.

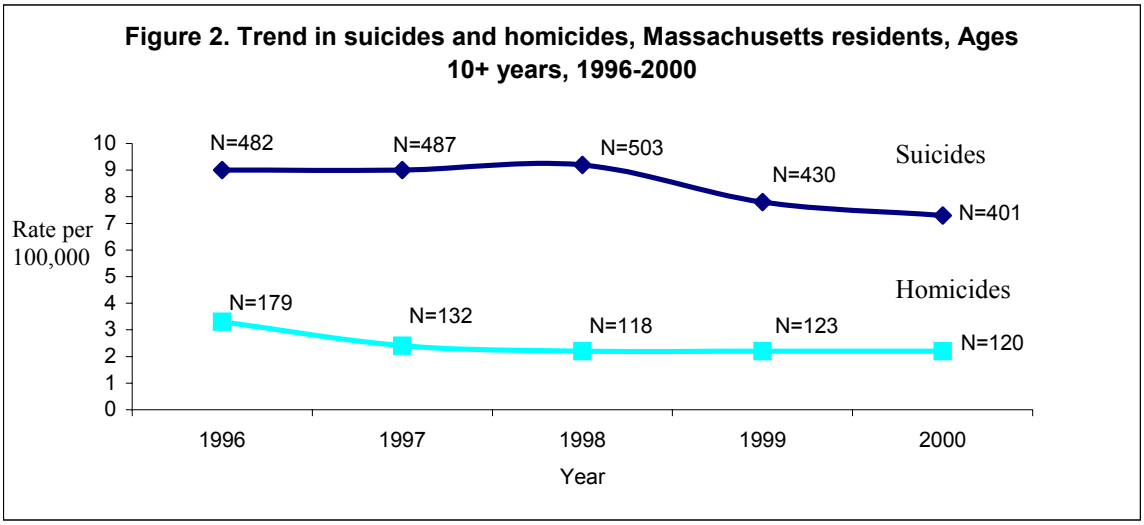
Table 1. Average annual leading causes of injury death[1] by intent, Massachusetts residents, ages 10+ years, 1999-2000

Unintentional		Suicide		Homicide[2]		Undetermined Intent	
MV Traffic[3]	442	Suffocation	146	Firearm	62	Poisoning	410
Fall	201	Firearm	111	Cut/Pierce	27	Drowning	10
Suffocation	117	Poisoning	100	Suffocation	8	Other causes	20
Other causes	537	Other causes	59	Other causes	25		
Average Annual Total	1297	Average Annual Total[4]	416	Average Annual Total	122	Average Annual Total	440

Data source: Registry of Vital Records and Statistics, MA Department of Public Health

Suicide rates in Massachusetts have been 2-3 times the homicide rate for the past 50 years. Suicide rates in Massachusetts have remained relatively stable since the early 1950's (between 7 to 10 per 100,000 population). The suicide rate decreased 6.9 % between 1999 and 2000 from 7.8 per 100,000 to 7.3 per 100,000. Homicide rates have slowly increased from a rate of 1 death per 100,000 population in the 1950's to a level around 4 deaths per 100,000 between 1980 and 1997. Most recently, the homicide rate has been 2 deaths per 100,000 (Figure 2).

Figure 2. Trend in suicides and homicides, Massachusetts residents, Ages 10+ years, 1996-2000



Data Source: Registry of Vital Records and Statistics, MA Department of Public Health

[1] Cause of death; the injury that initiated the events leading to death or the circumstances of the unintentional or intentional injury that resulted in the death. Ranking is based on average annual number of deaths, 1999-2000

[2] Excludes deaths caused by legal intervention

[3] Includes traffic-related motor vehicle deaths to occupants, pedestrians, motorcyclists, and bicyclists

[4] Column total may not equal average total due to rounding

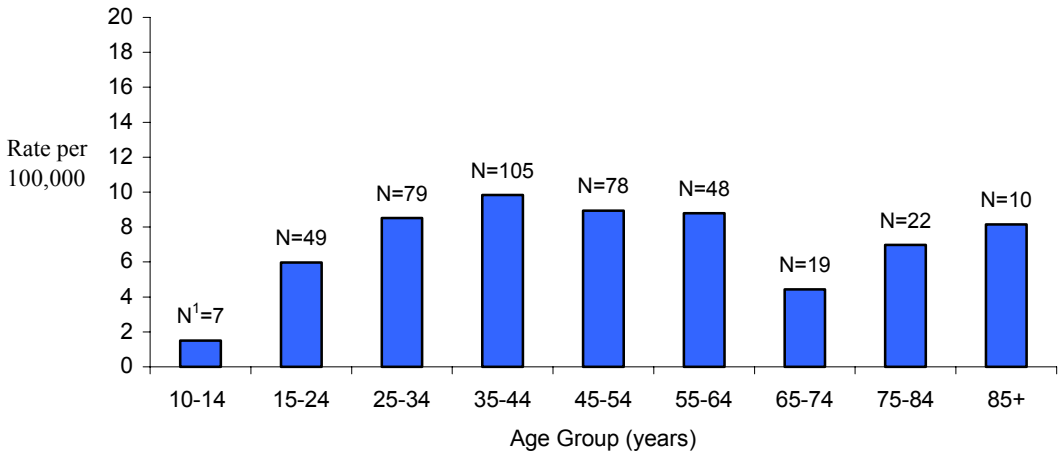
I: Suicide, 1999-2000

There were 831 suicides in Massachusetts in the years 1999 (N = 430) and 2000 (N = 401). The average annual rate was 7.5 per 100,000 people age 10 and over, which represents the lowest suicide rate in Massachusetts in the past 50 years.

Age and Sex

Suicide rates were very low for people 10 to 14 years of age (average annual rate: 1.6 per 100,000) but increased in older age groups (Figure 3). Persons 25 to 64 years of age (average annual rate: 9.1 per 100,000) had the highest rates and accounted for 74.4% of all suicides. Individuals 75 years and older accounted for 7.6% of all suicides.

Figure 3. Average annual suicide rates by age group, Massachusetts residents, 1999-2000

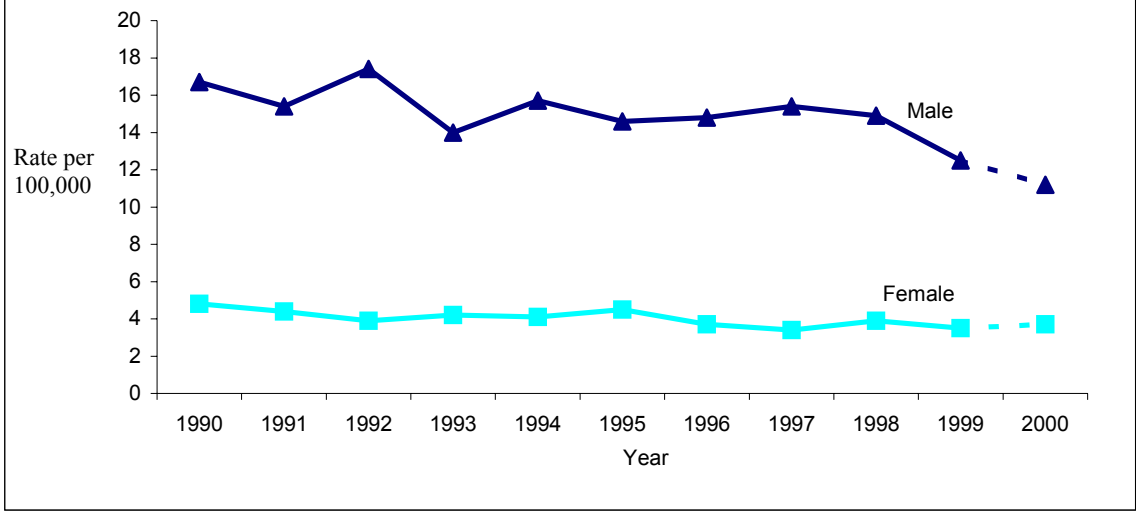


Data Source: Registry of Vital Records and Statistics, MA Department of Public Health

[1] Rates based on numbers less than 20 may be unstable. Please use caution when interpreting.
N represents average annual frequency

The suicide rate for males had been approximately 4 times greater than that of females for most of the 1990's, until 1999 when it dropped to 3 times that of females (Figure 4). Suicide rates for males decreased from 14.9 to 11.2 per 100,000 (24.8% decline) during the period 1998 – 2000, while for females the rate remained relatively stable (3.9 and 3.7 per 100,000, respectively).

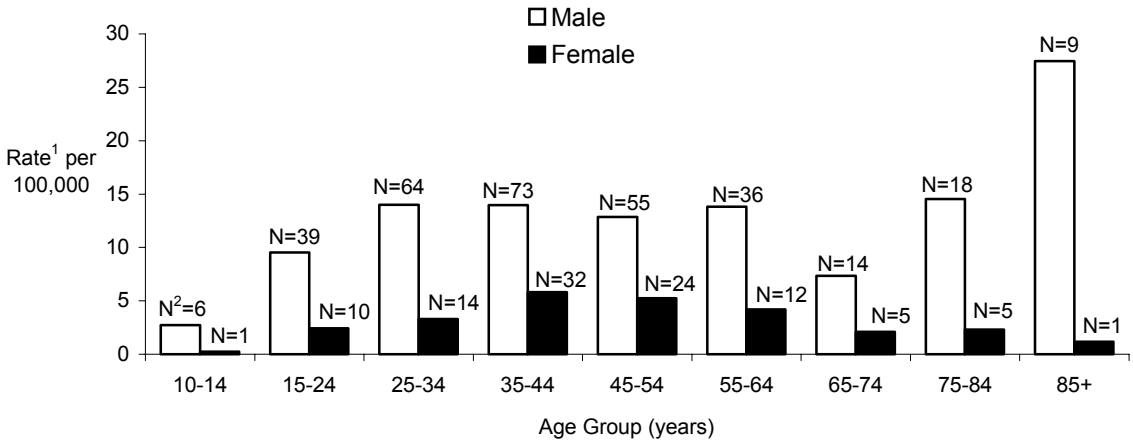
Figure 4. Suicide rates by sex, Massachusetts residents,ages 10+ years, 1990-2000



Data Source: Registry of Vital Records and Statistics, MA Department of Public Health
Note: In 1999, death coding changed from the ICD-9 classification to ICD-10 as reflected by the dotted line.

Figure 5 presents suicide rates by age group and sex. Female rates were highest among persons 35 to 54 years of age (average annual rate: 5.6 per 100,000). Male suicide rates were highest for those 75 years of age and older (average annual rate: 17.9 per 100,000). The 25 to 64 year age group accounted for 73.0% of suicides among males. Although the 85+ age group had the highest rate of any male age group, 27.5 deaths per 100,000 males, this group accounted for only 2.9% of male suicides (averaging nine deaths per year).

Figure 5. Average annual suicide rates by age group and sex, Massachusetts residents, 1999-2000



N= 831[3]

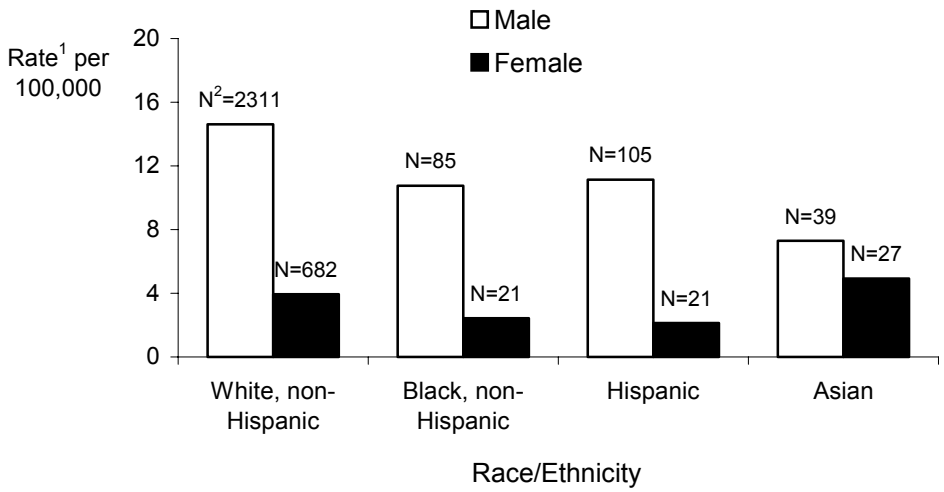
Data Source: Registry of Vital Records and Statistics, MA Department of Public Health

[1] Number of suicide deaths per 100,000 persons in each age group. Rates based on numbers less than 20 may be unstable. Please use caution when interpreting. N=831 suicide deaths between 1999-2000.
[2] N represents average annual frequency
[3] Two year total

Race and Ethnicity

Among males in Massachusetts, suicide rates were highest for white non-Hispanics, while for females, Asian/Pacific Islanders had the highest suicide rates (Figure 6).

Figure 6. Average annual suicide rates by race/ethnicity and sex, Massachusetts residents, ages 10+ years, 1994-2000



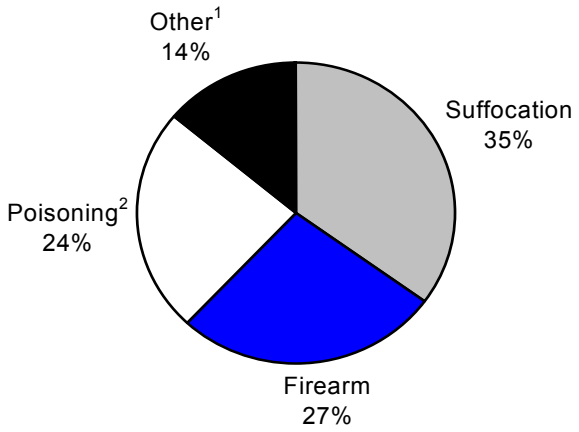
Data Source: Registry of Vital Records and Statistics, MA Department of Public Health

[1] Total number of suicide deaths. Seven years of data were used to avoid small numbers.
[2] Number of suicides per 100,000 persons in each race/ethnic group. Rates based on numbers less than 20 may be unstable, use caution when interpreting.

Method

Between 1999-2000, the most common methods of suicide in Massachusetts were suffocation (including hanging), firearm injury, and poisoning (which include drug overdoses) Figure 7.

Figure 7. Suicide by method, Massachusetts residents, ages 10+ years, 1999-2000



N=831[3]

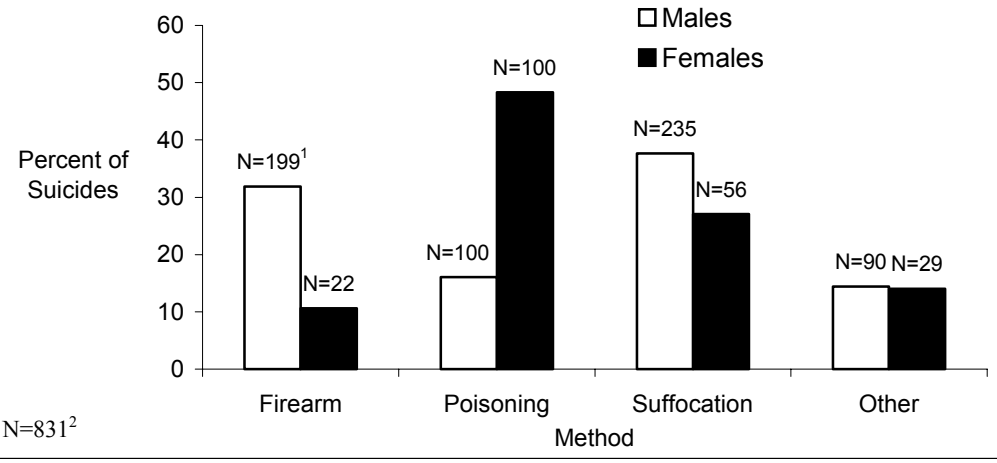
Data Source: MA Department of Public Health, Registry of Vital Records and Statistics

[1] Includes jumping from high places, fire/burns, submersion, and other and unspecified means, and late effects of self-inflicted injury
[2] Includes poisoning by solid or liquid substance, gases in domestic use, and other gases and vapors
[3] Two year total

Methods of suicide vary by sex. For males, suffocation and firearms were the most common methods, followed by poisoning (Figure 8). Among females, poisoning was the most common method followed by suffocation and firearms. In 2000, the leading poisoning agent for both men and women was carbon monoxide (22% of all poisoning suicides).

Approximately 90% of self-inflicted firearm injuries in 2000 were fatal (103 out of 115 injuries), compared to only 1% of self-inflicted poisonings (101 out of 8,610 injuries). This may partially explain the outcome disparity between males and females. Males are more likely to use firearms or suffocation and the higher lethality of these different methods may impact the outcome. Males have higher suicide fatality rates but much lower rates of self-inflicted injuries when compared to females.

Figure 8. Suicide by method and sex, Massachusetts residents, ages 10+ years, 1999-2000



Data source: Registry of Vital Records and Statistics, MA Department of Public Health

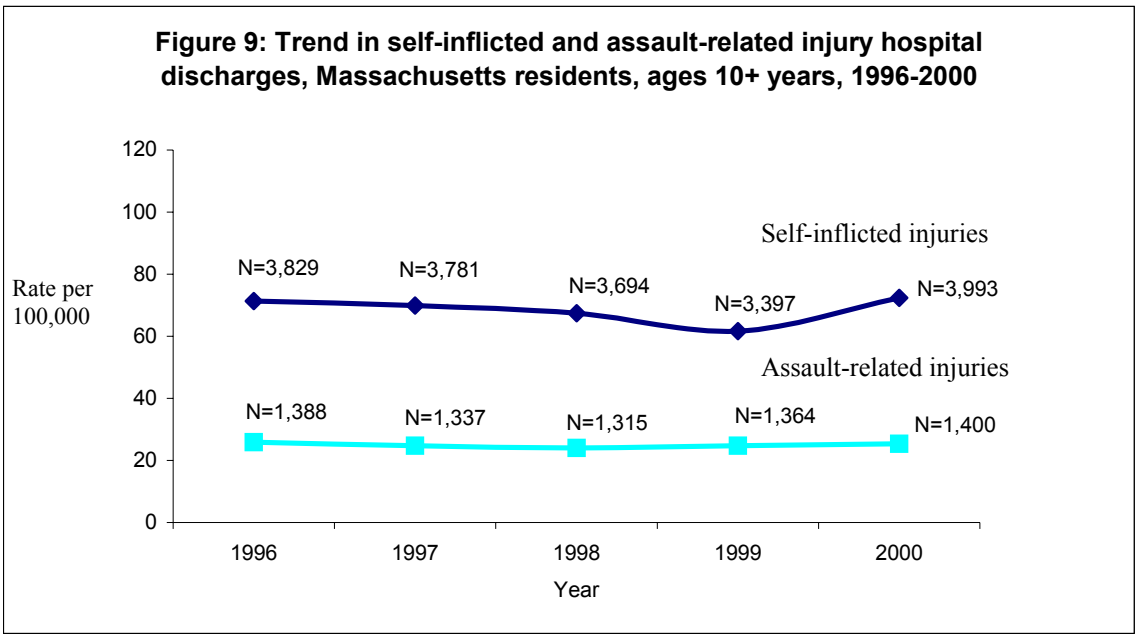
[1] N represents average annual frequency
[2] Two year total

II: Hospital Stays for Self-Inflicted Injuries, 1999-2000

Part A: Hospital Discharge

There were 7,390 acute care hospital discharges[1] for non-fatal self-inflicted injuries in Massachusetts in the years 1999 (N = 3,397) and 2000 (N = 3,993). The average annual number of hospital discharges for non-fatal self-inflicted injuries for this two-year period was 3,695 with an average annual rate of 66.9 per 100,000 people 10 years and over. In comparison, the average annual number of assault-related hospital discharges in this same population during this period was 1,382 with an annual rate of 25.0 per 100,000. Hospital discharge rates for self-inflicted injuries increased 17% between 1999 and 2000 after a period of decline, while assault-related injury hospitalization rates remained relatively stable (Figure 9). The total charges for self-inflicted injury hospitalizations were $32.3 million in 2000, with annual mean charge of $8,107 per discharge (median charge=$4,563).

Figure 9: Trend in self-inflicted and assault-related injury hospital discharges, Massachusetts residents, ages 10+ years, 1996-2000



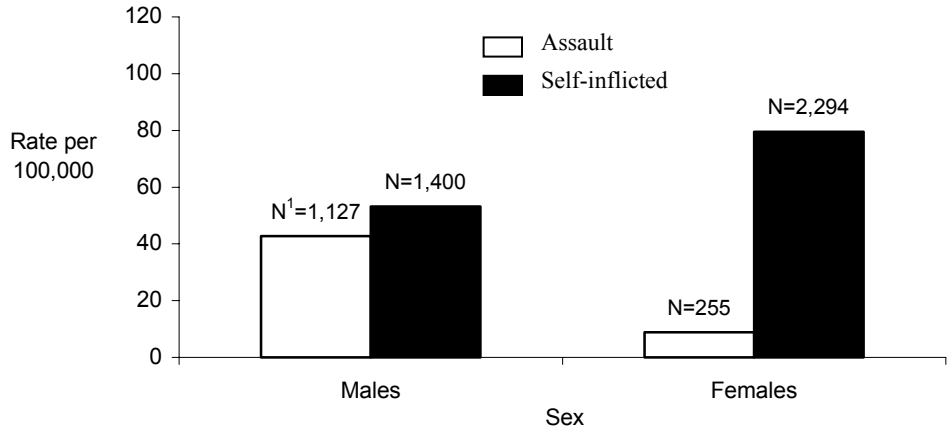
Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

[1] Hospitalizations for self-inflicted injuries represents discharged cases and excludes cases whose deaths occurred while in the hospital.

Age and Sex

Hospital discharges for self-inflicted injuries were higher than hospitalizations for assault-related injuries for both males and females (Figure 10). For males, the rate of hospital discharges for self-inflicted injuries was slightly higher than assault-related injuries (53.1 and 42.8 per 100,000 population, respectively). For females, the rate of self-inflicted injuries was approximately 9 times higher than for assault-related injuries (79.5 and 8.8 per 100,000 population, respectively).

Figure 10. Average annual assault-related and self-inflicted injury hospital discharge rate by sex, Massachusetts residents, ages 10+ years, 1999-2000

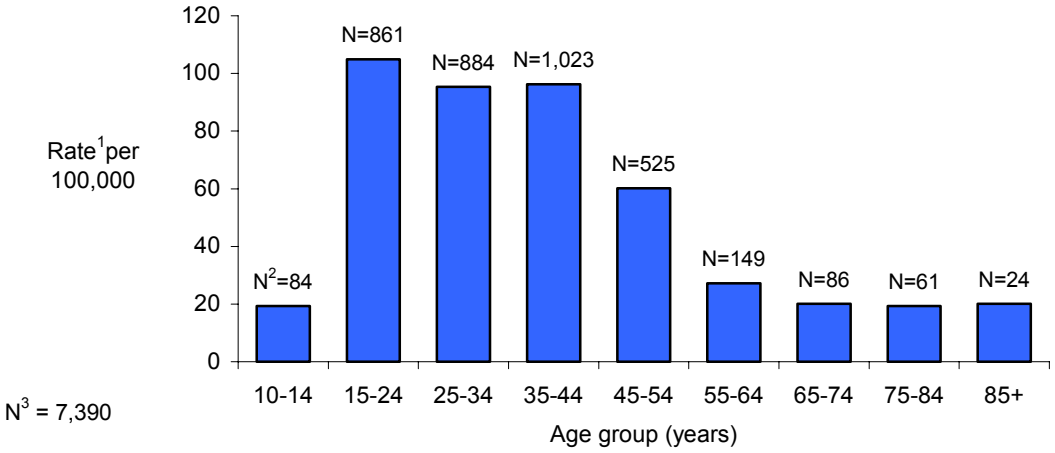


Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

[1] N represents average annual frequency

The age pattern for self-inflicted injury hospital discharges is different than the age pattern for suicides. Rates of self-inflicted injury were highest among the 15-24 year age group (average annual rate: 104.9 per 100,000) then decreased in the older age groups (Figure 11). In comparison, completed suicide rates were highest among the 35-44 year age group and remained elevated throughout the later age groups (Figure 3). However, as with completed suicides, the majority (89.1%) of non-fatal self-inflicted injuries occurred in early to mid-life from ages 15 to 54 years.

Figure 11. Average annual self-inflicted injury hospital discharge rate by age group, Massachusetts residents, 1999-2000



Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

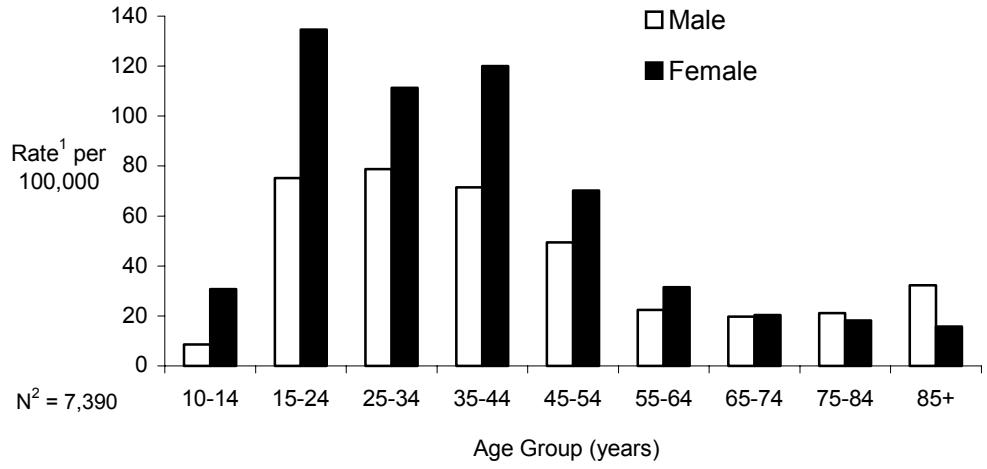
[1] Number of hospitalizations for self-inflicted injury per 100,000 persons in each age group; average annual rate based on 2000 Census population. N=7390 total number of hospitalizations for self-inflicted injury, 1999-2000

[2] N represents average annual frequency

[3] Two year total

Self-inflicted injury hospital discharge rates for females were higher than those for males in all age groups 75 years and above where males had higher rates (Figure 12). For females, the rates were highest between 15 and 44 years (average annual rate: 121.4 per 100,000 with N = 1,727). For males the average annual rate for the same age group was 75.0 per 100,000 with N = 1,040. The gender disparity in rates of self-inflicted injury hospital discharges was greatest among those ages 10-14 years. Females in this age group had rates 3.5 times higher than males (30.7 and 8.6 per 100,000, respectively).

Figure 12. Average annual self-inflicted injury hospital discharge rate by age group and sex, Massachusetts residents, 1999-2000



Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

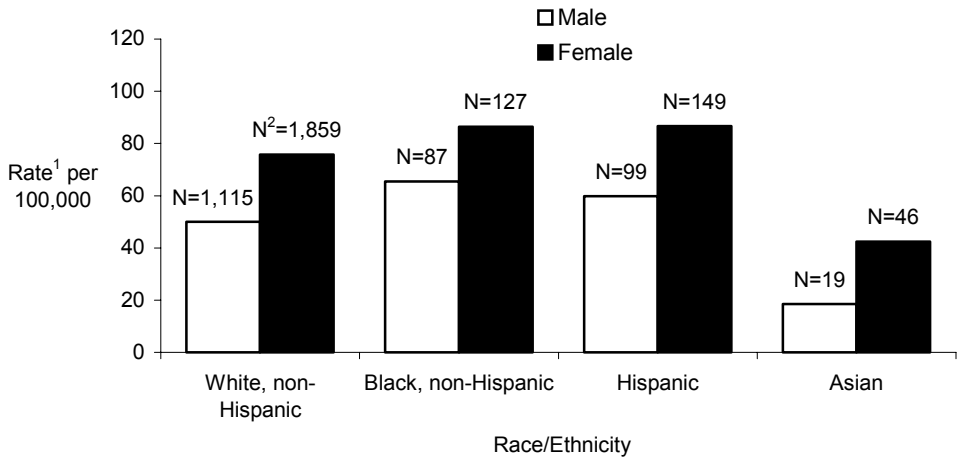
[1] Number of hospitalizations for self-inflicted injury per 100,000 persons in each age group; average annual rate based on 2000 Census population. N=7390 total number of hospitalizations for self-inflicted injury, 1999-2000

[2] Two year total

Race and Ethnicity

Among males, black, non-Hispanics had the highest hospital discharge rates of self-inflicted injuries. Black, non-Hispanics and Hispanics had the highest rates of self-inflicted injuries among females (Figure 13). This differs from the pattern found for suicides (Figure 6) where white, non-Hispanic males and Asian/Pacific Islander females had the highest rates.

Figure 13. Average annual self-inflicted injury hospital discharge rate by race/ethnicity and sex, Massachusetts residents, ages 10+ years, 1999-2000



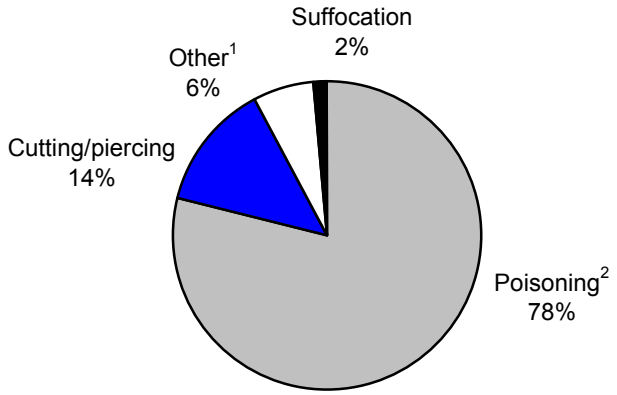
Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

[1] Number of hospitalizations for self-inflicted injury per 100,000 persons in each race/ethnic group. Rates based on numbers less than 20 may be unstable, use caution when interpreting. Rates based on average number of hospitalizations for 1999-2000 and 2000 Census population
[2] N represents average annual frequency

Method

The majority (78%, N = 5,822) of hospital discharges for self-inflicted injuries were the result of poisoning (Figure 14). In 2000, 19% of the poisoning agents were benzodiazepine-based tranquilizers (e.g. Diazepam), and 18% were antidepressants. Cutting/piercing (14%, N = 999) and suffocation (2%, N = 112) were the second and third leading causes of self-inflicted injury hospitalizations. The remainder (6%, N = 457) were made up mainly of falls, fire/burns, and firearm injuries. Firearms represented 0.3% of hospital discharges for self-inflicted injuries. Unlike suicide deaths, self-inflicted injury hospitalizations did not show a pronounced variation in method by sex. Poisoning was slightly higher among females (81.7%) than males (74.0%) and cutting/piercing was slightly higher among males (15.2%) than females (12.5%).

Figure 14. Self-inflicted injury hospital discharges by method, Massachusetts residents, ages 10+ years, 1999-2000



N[3] = 7,390

Data source: MA Hospital Discharge Database, MA Division of Health Care Finance and Policy

[1] Includes jumping from high places, fire/burns, firearms, submersion, other and unspecified means
[2] Includes poisoning by solid or liquid substances, gases in domestic use, and other gases and vapors
[3] Two year total

Part B: Observation Stays

Observation stays include cases not "formally" admitted to the hospital, these cases have stays of generally less than 72 hours. These cases are not captured in the Hospital Discharge Database. There were 1,658 observation stays for non-fatal self-inflicted injuries in Massachusetts in the years 1999 (N = 890) to 2000 (N = 768). The average number of observation stays for non-fatal self-inflicted injuries for this two-year period was 829 with a rate of 15.0 per 100,000 people ages 10 years and over. In comparison, the average number of observation stays for assault-related injuries among the same population during this period was 361 with a rate of 6.5 per 100,000. The total charges for observation stays due to self-inflicted injuries were $1.9 million in 2000, with annual mean charge of $2,588 per stay (median charge=$2,322).

Age and Sex

For females, observation stay rates for self-inflicted injuries (Figure 15) were 5 times higher than rates for assault-related injuries (19.3 and 3.6 per 100,000, respectively). For males however, the observation stay rates were similar for self-inflicted and assault-related injuries (10.3 and 9.8 per 100,000, respectively). Overall, the average annual number of observation stays for self-inflicted injury and assault-related injuries were 829 and 361, respectively.

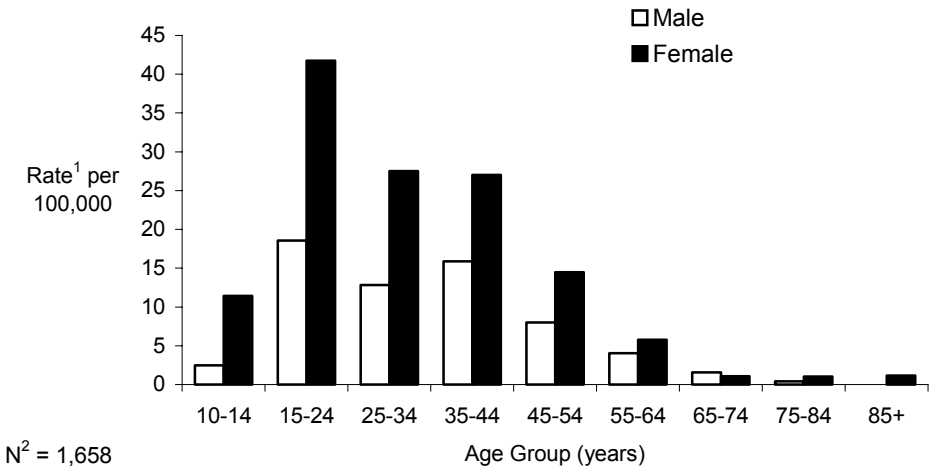
Figure 15. Average annual assault-related and self-inflicted injury observation stay rates by sex, Massachusetts residents, ages 10+ years, 1999-2000

Data source: MA Outpatient Observation Database, MA Division of Health Care Finance and Policy

[1] Rates are based on average annual number of self-inflicted injury observation stays between 1999-2000 and 2000 Census population
[2] N represents average annual frequency

The distribution of observation stays by sex and age group was similar to that seen for hospital discharge data (Figure 16). Overall, females had higher rates than males and the 15-24 year age group had the highest rates of all age groups.

Figure 16. Average annual self-inflicted injury observation stay rates by age group and sex, Massachusetts residents, 1999-2000



Data source: MA Outpatient Observation Database, MA Division of Health Care Finance and Policy

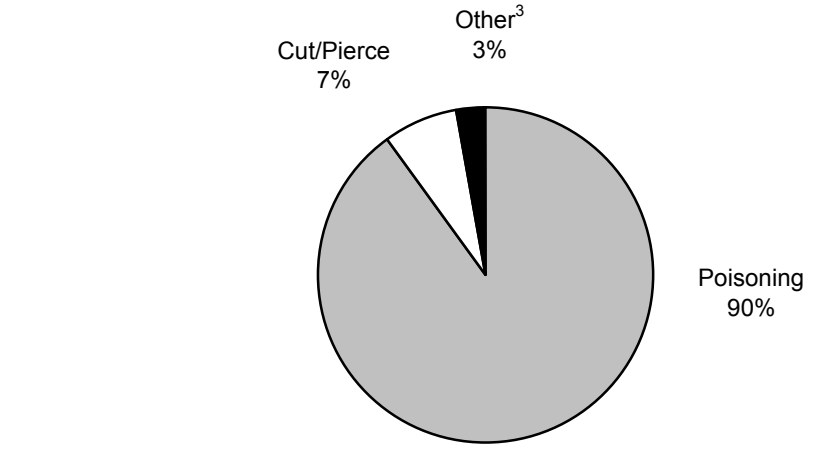
[1] Number of observation stays for self-inflicted injury per 100,000 persons in each age group, average annual rate based on 2000 Census population. Rates based on numbers less than 20 are unstable. Please interpret with caution. Total observation stays for self-inflicted injuries 1999-2000: N=1,658

[2] Two year total

Method

As with hospitalizations for self-inflicted injuries, the majority (90%, N = 1491) of observation stays for these injuries were the result of poisoning (Figure 17). In 2000, 21% of poisoning agents were benzodiazepine-based tranquilizers (e.g. Diazepam) and 18% were due to antidepressants. Cutting/piercing was the second leading cause of observation bed stays for self-inflicted injuries (7%, N = 122). The remainder (3%, N = 45) were made up primarily of suffocations and falls. As in hospitalization discharges, the methods of these injuries were similar among males and females.

Figure 17. Self-inflicted injury observation stays by method, Massachusetts residents, ages 10+ years, 1999-2000



Data source: MA Outpatient Observation Database, MA Division of Health Care Finance and Policy

[3] Includes hanging, jumping from high places, other and unspecified means of self-inflicted injury.
[2] Two year total

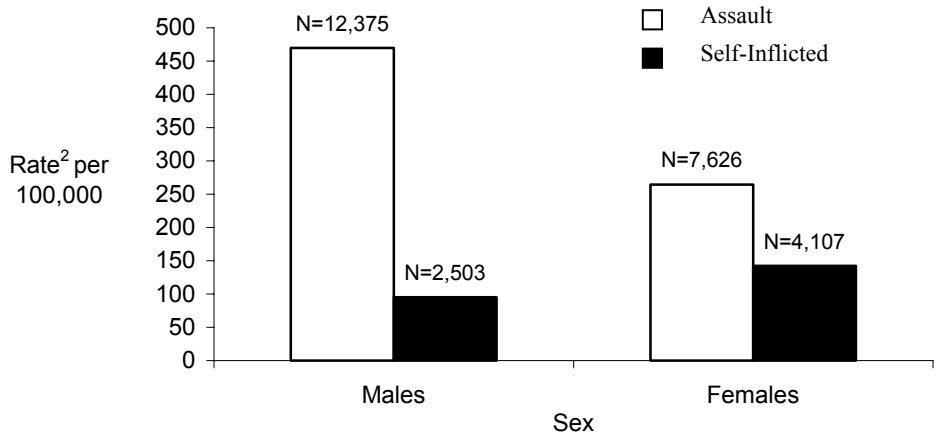
III: Emergency Department Discharges for Self-Inflicted Injuries, 2000

There were an estimated 6,799 emergency department (ED) visits[1] for non-fatal self-inflicted injuries in Massachusetts in 2000 with a rate of 123.2 per 100,000 people 10 years of age and over. In comparison, the estimated number of ED visits for assault-related injuries during this period was 20,343 with a rate of 368.5 per 100,000.

Age and Sex

Males and females were treated and released from the ED for more assault-related injuries than self-inflicted injuries (Figure 18). This is in contrast to fatalities and hospital discharges as seen previously. This finding may be reflective of general clinical practice to hospitalize patients presenting with self-inflicted injuries or suicidal ideation, or it may also reflect severity of injury. Overall, the estimated rate of ED visits for self-inflicted injury was higher for females than males (142.3 and 95.0 per 100,000 respectively). For assault-related injuries the rate was higher for males than females (469.7 and 264.2 per 100,000, respectively).

Figure 18. Estimated assualt-related and self-inflicted injury emergency department visit rates by sex, Massachusetts residents, ages 10+ years, 2000



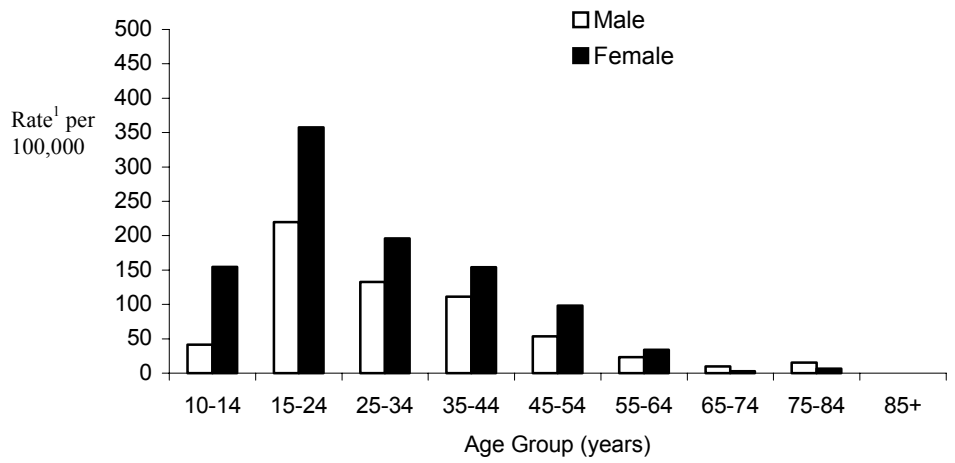
Data source: MA Emergency Department Injury Surveillance System, MA Department of Public Health

[1] Estimated Emergency Department visits for self-inflicted injuries represent discharged cases and excludes cases resulting in death or hospital admission. Statewide estimates are based on a sample of 11 hospital emergency departments participating in the Emergency Department Injury Surveillance System. See Method notes.

[2] Estimated number of ED visits for self-inflicted injury per 100,000 population. 2000 Census population used to calculate rates.

Estimated ED visit rates for self-inflicted injuries by age group and sex were similar to the pattern seen in hospital discharges (Figure 19). Rates were highest among 15 to 24 year-olds (219.8 and 357.5 per 100,000 for males and females, respectively) and were progressively lower for the older age groups. The majority of self-inflicted injury cases seen in the ED were among the 10 to 44 year-old age group for both males (87.0%, N = 2,179) and females (86.4%, N = 3,550). The rate for females was higher than that of males throughout all age groups except 65 years-old and above. The rate for females 10-14 years of age was approximately 3.7 times higher than that of males similarly aged (154.4 and 41.5 per 100,000, respectively).

Figure 19. Estimated emergency department visit rates for self-inflicted injury, by age group and sex, Massachusetts residents, 2000

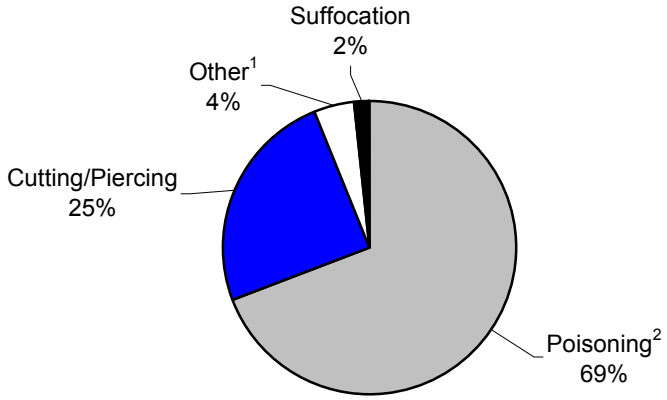


[1] Number of estimated ED visits for self-inflicted injury per 100,000 persons of each age group. 2000 Census populations used to calculate rates.
Data source: MA Emergency Department Injury Surveillance System, MA Department of Public Health

Method

The most common method of self-inflicted injury seen among ED visits was poisoning (69.1%, N = 4,700) (Figure 20). In 2000, 17% of the poisoning agents were classified as benzodiazepine-based tranquilizers (e.g. Diazepam), and 11% were aromatic analgesics (e.g. Acetaminophen). The second and third leading methods were cutting/piercing (24.8%, N = 1,689) and suffocation (1.7%, N = 116). The remainder (4.3%, N = 294) were made up mainly of falls, drowning/submersions, and unspecified mechanisms.

Figure 20. Estimated emergency department visits for self-inflicted injury by method, Massachusetts residents, ages 10+ years, 2000



Data source: MA Emergency Department Injury Surveillance System, MA Department of Public Health

[1] Includes submersion, firearms, jumping from high places, other and unspecified means of self-inflicted injury
[2] Includes poisoning by solid or liquid substance, gases in domestic use, and other gases and vapors

IV: Adolescent Suicidal Behavior, 2001

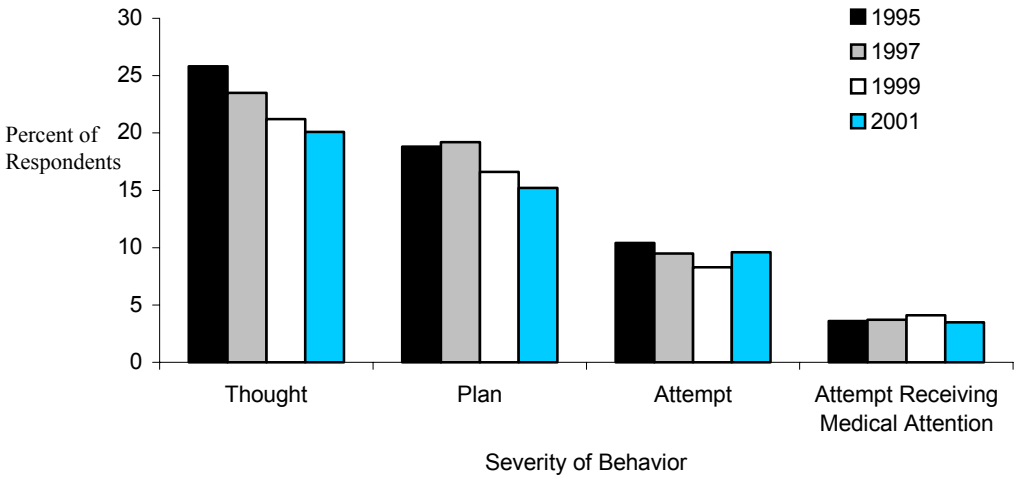
Massachusetts Youth Risk Behavior Survey (MYRBS)

The Massachusetts Youth Risk Behavior Survey (MYRBS) is an anonymous written questionnaire administered every other year that collects self-reported data on a variety of health-related topics from high school students. Developed by the U.S. Centers for Disease Control and Prevention and administered by the Massachusetts Department of Education, the MYRBS has included questions on suicide since 1990. In 2001, the MYRBS was administered to a sample of students in grades 9 through 12 in 64 randomly selected Massachusetts public high schools (N=4,204 respondents). Those attending private or parochial schools, those in alternative placements, and those out of school are not included in the MYRBS. This survey is particularly useful for providing details about the behavioral and circumstantial issues surrounding suicide that are often absent from traditional injury databases.

MYRBS Results

Twenty percent of high school youth participating in the 2001 MYRBS responded that they had seriously considered suicide. Ten percent of respondents said they had attempted suicide, and almost four percent received medical attention as a result of their attempt (Figure 21). Moreover, 29% of students felt sad or hopeless enough over a two-week period during the previous year to cease some of their usual activities.

Figure 21. Percentage of MYRBS respondents reporting suicidal behaviors by severity of behavior, Massachusetts, 1995-2001

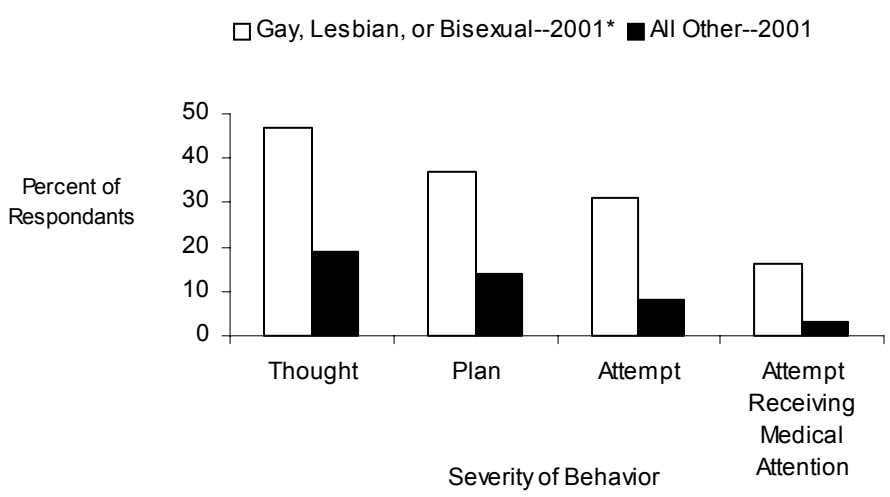


Data source: Massachusetts Youth Risk Behavior Survey, MA Department of Education

Overall, reported thoughts, plans, and medical treatment for a self-inflicted injury have shown a decrease since 1995, although there has been an increase in reported attempts since 1999. Female students reported suicidal thoughts and behaviors at a significantly higher rate than males. Reported suicide attempts and reports of receiving medical treatment for an attempt were not significantly different among the four grade levels. In 2001, students from urban areas were significantly more likely to have attempted suicide than students from suburban areas. Students from urban and suburban areas were significantly more likely to have received medical care for an attempt than students from rural areas. There was no significant difference by race/ethnicity.

Among students self-identified as gay, lesbian, or bisexual, reported suicide thoughts and plans have decreased from 1999, while reported attempts have increased slightly. These percentages remain higher than those not self-identified as gay, lesbian, or bisexual. Students who identified themselves as gay, lesbian or bisexual were approximately four times more likely to have attempted suicide than other students and over five times more likely to have received medical treatment as a result of their attempt (Figure 22).

Figure 22. Severity of suicidal ideation and behavior of high school students, by sexual orientation, Massachusetts, 1999-2001



Data source: Massachusetts Youth Risk Behavior Survey, MA Department of Education

While the rates of completed suicides among adolescents in Massachusetts remains relatively low, reported thoughts and plans among Massachusetts' adolescents are higher than U.S. rates (20.2% and 16.6% in Massachusetts compared to 19.3% and 14.5% nationwide, respectively). Reports of receiving medical attention for a suicide attempt are also higher in Massachusetts than the U.S. overall (4.1% and 2.6%, respectively). [1]

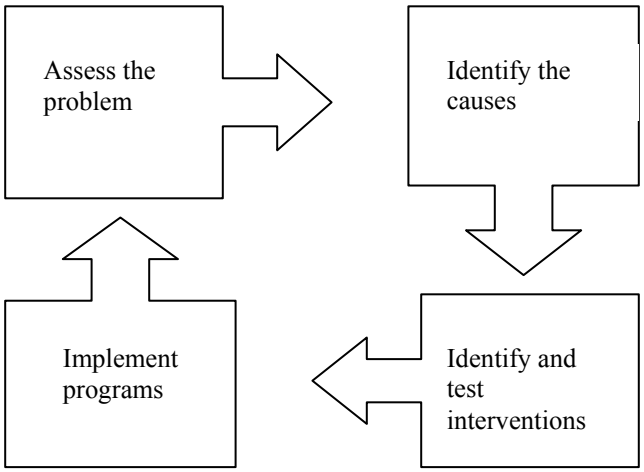
V: The Public Health Approach to Suicide Prevention

Suicide is widely recognized as a serious public health problem to which federal and state governments have responded. As early as 1958, the U.S. Public Health Service established the first suicide prevention center in the country. More recently, the U.S. Surgeon General revitalized suicide prevention efforts when his Office issued the *Call to Action to Prevent Suicide* in 1999, following the National Suicide Prevention Conference in 1998. Subsequently, in 2001, the Surgeon General released the first *National Strategy for Suicide Prevention,* a document which has served as a model for a number of states, including Massachusetts.

In 1999, key leaders from public and mental health, suicide prevention advocates, policy makers, survivors and others joined together to create the Massachusetts Suicide Prevention Working Group. The mission of the Working Group is to support and develop effective suicide prevention initiatives by providing leadership and advocacy, promoting collaborations among organizations, developing and recommending policy, and promoting research and development. Among other activities, the Working Group has organized statewide conferences, prepared a draft statewide strategic plan for suicide prevention in Massachusetts, held annual events in recognition of National Suicide Prevention Awareness Week, and worked to raise awareness of suicide prevention among the media.

Most likely, none of these initiatives would have taken place without the data to support the need for suicide prevention efforts. The magnitude of the problem, the trends and the identification of high-risk populations, as described in this and other databooks, makes it possible to design public health prevention programs. Using a public health approach, (the four phases are described below), is an organized way of marshalling prevention efforts and ensuring that they are effective or altered to improve effectiveness.

Figure 23. The public health approach to prevention



Data source: US Public Health Service, The Surgeon General's Call to Action to Prevent suicide. Washington,D.C.:1999

Phase 1: Assessing the Problem

Collection and analysis of information about suicide and suicidal behavior is the first phase of prevention. Part of the work done during this phase is defining the magnitude of the problem, examining trends, describing the circumstances of these injuries, examining access to and quality of health services and support networks, and describing the severity, cost, and results of these injuries.

In Massachusetts there are several sources of this information: 1) the Registry of Vital Records and Statistics at the Massachusetts Department of Public Health (MDPH) collects data on all deaths including suicides; 2) the Massachusetts Hospital Discharge Database at the Division of Health Care Finance and Policy collects data on individuals sustaining self-inflicted injuries requiring admission to an acute care hospital; 3) the Massachusetts Outpatient Observation Bed Database at the Division of Health Care Finance and Policy collects data on individuals sustaining self-inflicted injures requiring an observation bed stay to an acute care hospital; and 4) the Emergency Department Injury Surveillance System at MDPH that collects data on individuals sustaining self-inflicted injuries treated and released from acute care hospital emergency departments.

Phase 2: Identifying Causes and Risk Factors

The second phase of prevention examines the "why" of suicide behavior. This involves assessing risk factors such as depression or other mental illness, alcohol and other drug use, family history, relationship or job loss, or other stressful life circumstances, all factors that may indicate higher risk for suicide. It remains unclear how risk and protective factors interact or

how their inter-relationship can be modified for effective prevention. Identifying the causal chain is necessary in order to develop interventions.

The systematic collection and analysis of data will assist MDPH and others to identify individual and community risk factors and to promote local prevention and intervention efforts.

Phase 3: Identifying and Testing Interventions

In the next phase, strategies are developed to address identified risk factors and causes. Testing the effectiveness of each prevention strategy is critical to ensure that strategies are ethical, feasible, and safe. Testing and evaluating interventions can help determine the most effective strategy for different target populations, as results may differ among particular age, gender, ethnic, sexual orientation, and cultural groups.

Phase 4: Implementing Interventions

In the fourth phase, interventions proven to be effective in preventing suicide and suicidal behavior are implemented. From here, ongoing data collection and program evaluation are essential to gauge effectiveness, redefine the scope as needed, and identify criteria to enhance and extend successful suicide prevention programs. Since ongoing data collection and program evaluation are essential to gauge effectiveness, the process then returns to phase one: collecting information about suicide and suicidal behavior.

Conclusion

Communities have much to consider as prevention programs are developed and implemented. Strategies that involve coalitions of historically separate domains such as health care, mental health systems, faith-based organizations, elder services, childcare and education, social services, civic groups, and public health are more likely to succeed because they reach a wide audience. It is also critical to adjust and adapt interventions in response to the experiences of clients and survivors, and to reflect community culture, values, standards, and norms. Interventions must be relevant to all racial, ethnic, and cultural groups within the community.

At the Massachusetts Department of Public Health, injury prevention and surveillance staff worked closely together to understand the data and develop prevention programs. Much of this work is done with coalitions, such as the Mass. Suicide Prevention Working Group, and community-based programs. MDPH staff facilitate collaborations, provide statistics and suggest ways to use data, and serve as resources to communities and individuals seeking to prevent and reduce suicide and self-inflicted injuries.

APPENDICES

APPENDIX A. Methods and Technical Notes

Data Sources:

Primary sources:

Mortality (Death) Data, 1999-2000: The source of suicide data for this report was the Registry of Vital Records and Statistics at the Massachusetts Department of Public Health. These data are based on calendar year (January – December).

Massachusetts Hospital Discharge Database (MHDDS), 1999 – 2000: Hospital discharge data were obtained from the Massachusetts Hospital Discharge Database maintained by the Massachusetts Division of Health Care Finance and Policy. These data are based on fiscal year (October 1 – September 30).

Massachusetts Outpatient Observation Database, 1999 – 2000: Observation bed stay data were obtained from the Massachusetts Outpatient Observation Database maintained by the Massachusetts Division of Health Care Finance and Policy. These data are based on fiscal year (October 1 – September 30).

This is the first time observation bed stays have been reported in a Massachusetts Report on self-inflicted injuries. These include cases not "formally" admitted to the hospital and whose stays are generally less than 72 hours in length.

Emergency Department Injury Surveillance System (EDISS), 2000: Emergency Department data were obtained from the Emergency Department Injury Surveillance System maintained by the Massachusetts Department of Public Health's Injury Surveillance Program. Data are based on fiscal year (October 1 – September 30).

Massachusetts Youth Risk Behavior Survey (MYRBS), 2001: The Massachusetts Youth Risk Behavior Survey is a voluntary, anonymous student health survey conducted every two years by the Massachusetts Department of Education to monitor the prevalence of adolescent risk behaviors. The survey in 2001 consisted of 99 multiple-choice questions, including several concerning students' thoughts, behaviors, and moods during the previous twelve months. It was administered in three to five classes, grades 9 through 12, in 64 randomly selected public high school across the state. In general, the 2001 MYRBS estimates of health behaviors are accurate to within plus or minus three percentage points.

Other sources:

Population:

For the years 1999 and 2000, the population data used to calculate age and total rates are based on the 2000 US Census figures (US Census Bureau). The calculation of race/ethnicity rates for this period is based on the Preliminary Draft Estimate of Census 2000 SFI, Massachusetts Data, MA Department of Public Health.

MassCHIP was used for population estimates for multiple year race/ethnicity rate calculations based on average population over the time period.

Population File: Interpolations 1986-1989, Census Counts 1990 & MISER Estimates 1985, 1991-2000
Massachusetts Community Health Information Profile (MassCHIP)
Massachusetts Department of Public Health
MassCHIP v2.8 r270.0

11/8/2002

General notes:

For the purpose of medical coding, deaths are classified as either natural or injury-related, with injury deaths further categorized by the "intentionality" of the injury: unintentional, intentional (suicide and homicide), or of undetermined intent. Non-fatal injuries are categorized in a similar manner. These classifications provide the primary basis for surveillance of suicide and self-inflicted injuries. In this report injuries are classified by their external cause and intent according to the International Classification of Diseases (ICD) manual. In 1999, a revised ICD manual (ICD – 10) was implemented for death certificates only. Certain injury categories may not be comparable between ICD – 9 and ICD – 10. A listing of ICD – 9 and ICD – 10 external causes of injury codes can be found on page 33.

Analyses are for Massachusetts residents ages 10 and older. Suicide deaths include Massachusetts residents dying in state or out of state. All other analyses include Massachusetts residents admitted to and discharged from an acute care hospital in Massachusetts, admitted to and discharged from an observation bed in Massachusetts, or treated and released from an emergency department. Non-Massachusetts residents are excluded from all analyses. Massachusetts residents were identified by town code (deaths) or by Zip codes (all other databases).

Injury Classifications:

Mortality Data:

Deaths (suicides) were defined using the International Classification of Disease, Version 10 (ICD – 10) codes (X60 – X64, and Y87.0).

Hospital Discharge Data:

Hospital discharges for non-fatal, self-inflicted injuries were defined using the external cause of injury codes (E codes) from the International Classification of Disease, Version 9 Clinical Modification (ICD – 9 – CM). Cases were defined as those with a principal E code of E950 – E959.

Patients who died during their hospital stay are excluded and captured in Vital Records.

Observation Bed Stay Data:

Observation bed stays for non-fatal, self-inflicted injuries were defined using the external cause of injury codes (E codes) from the International Classification of Disease, Version 9 Clinical Modification (ICD – 9 – CM). Cases were defined as those with a principal E code of E950 – E959.

Patients who died during their hospital stay are excluded and captured in Vital Records.

Emergency Department Data:

ED discharges for non-fatal, self-inflicted injuries were defined using the external cause of injury codes (E codes) from the International Classification of Disease, Version 9 Clinical Modification (ICD – 9 – CM). Cases were defined as those with a principal E code of E950 – E959.

Patients dying in the ED are excluded and are captured in Vital Records. Patients admitted through the ED to an acute-care hospital are captured in either the Hospital Discharge Database or the Outpatient Observation Database.

Statewide estimates are based on a sample of 11 participating hospital emergency departments. Statewide injury estimates are generated by multiplying the number of injuries in the sample population by a factor that is based upon the ratio of ED visits in all MA hospital in 2000 to the number of ED visits in the sampled hospitals. Total emergency department visit data was obtained from the MA Division of Health Care Finance and Policy.

Data Limitations:

Some suicide and self-inflicted injuries may be classified as of "undetermined intent" or "unintentional" if there is inadequate information regarding the intent of the injury. Thus, incomplete circumstantial evidence, as well as social stigma surrounding self-injury, may lead to an under-reporting of the number of suicides and non-fatal self-inflicted injuries.

In addition, the hospital discharge, observation bed admission, and emergency department visit databases do not include injuries among individuals treated in psychiatric hospitals, Veteran's Administration hospitals, corrections facilities, or by health professionals outside of a hospital setting. Therefore, the number of nonfatal self-inflicted injury cases is not complete. No single data system currently exists for capturing the full scope of suicide attempts in Massachusetts.

Finally, for the Emergency Department Injury Surveillance System, statewide estimates are based on a sample of 12 hospital emergency departments that participate in EDISS and thus results may not necessarily represent true magnitude of the problem.

Note: Rates based upon frequencies less than 20 may be unstable and should be interpreted with caution.

APPENDIX B. Codes Used for Categorizing Method of Suicide and Self-Inflicted Injury

Method of Suicide/Self-Inflicted Injury	ICD-9-CM E code	ICD-10 Code
Cut/pierce *Cutting and piercing by instruments or objects*	E956	X78
Drowning/submersion *Drowning and submersion with and without involvement of watercraft*	E954	X71
Falls *Jumping from high place*	E957.0 – E957.9	X80
Fire/flames; hot object or substance *Intentionally self-inflicted burns*	E958.1, E958.2, E958.7	X76 – X77
Firearm *Includes handgun, shotgun, hunting rifle, military firearm, flare, or unspecified gunshot wounds*	E955.0 – E955.4	X72 – X74
Motor vehicle traffic *Motor vehicle traffic injuries involving automobiles, vans, trucks, motorcycles, trains, or trams; excludes aircraft*	E958.5, E958.6	X82
Natural/environmental *Excessive heat, cold, hunger, and exposure to weather conditions*	E958.3	Classified elsewhere
Poisoning *Drugs, alcohol, other solid/liquid substances, gases, and vapors*	E950.0 – 952.9	X60 – X69
Struck by or against	Classified elsewhere	X79
Suffocation *Inhalation or ingestion of food or other objects and suffocation by other mechanical means that hinder breathing (e.g. plastic bag over face, suffocation by bedding, hanging)*	E953.0 – 953.9	X70
Other specified, classifiable *Includes explosive materials, jumping or lying before moving object*	E955.5, E955.6, E955.9, E958.0, E958.4	X75, X81
Other specified, not elsewhere classified *Includes injuries not assigned to specific injury categories such as caustic substance other than poisoning, crashing of aircraft, electrocution*	E958.8, E959	X83, Y87.0
Unspecified *Includes injuries where the cause is not reported*	E958.9	X84
All Suicides/Self-Inflicted Injuries	**E950 – E959**	**X60 – X84, Y87.0**

APPENDIX C. Data Tables

Table 1. Suicide by Sex and Age, MA Residents, 1999-2000						
	Males			Females		
Age	MAF[1]	2000 Pop	Rate[2]	MAF	2000 Pop.	Rate
10-14	6	221168	2.7	1	210079	---[3]
15-19	16	210460	7.6	5	205277	2.2
20-24	23	198756	11.6	6	205523	2.7
25-29	28	213376	13.1	8	220648	3.6
30-34	36	242386	14.6	8	250378	3.0
35-39	38	266507	14.3	15	274086	5.3
40-44	35	255838	13.7	17	266564	6.4
45-49	31	225029	13.6	10	236916	4.0
50-54	24	199205	12.0	14	212203	6.6
55-59	23	148841	15.5	8	161161	4.7
60-64	13	111504	11.7	5	124901	3.6
65-69	9	98882	8.6	3	117616	---
70-74	6	91416	6.0	3	119916	---
75-79	10	73829	12.9	3	111112	---
80-84	8	46464	17.2	2	84235	---
85+	9	30948	27.5	1	85744	---
Total[4]	312	2634609	11.8	104	2886359	3.6

1 MAF = Mean Annual Frequency
2 Rate = (MAF/Population)*100,000. Caution: Rates calculated on Frequency < 20 are unstable and therefore should be interpreted with caution
3 Calculations based on fewer than 5 cases are excluded
4 Average annual total, may be less than total of MAF by age group due to rounding

Table 2. Suicide by Race and Sex, Age 10+, MA 1994-2000																
	White, non-Hispanic				Black, non-Hispanic				Hispanic				Asian/Pacific Islander			
	Males		Females		Males		Females		Males		Females		Males		Females	
	Freq	Rate[1]	Freq	Rate	Freq	Rate	Freq	Rate	Freq	Rate	Freq	Rate	Freq	Rate	Freq	Rate
1994	362	16.3	107	4.4	13	12.2	2	---[2]	15	12.5	0	0.0	3	---	4	---
1995	326	14.5	107	4.3	17	15.9	10	8.6	22	18.0	5	4.0	5	7.5	2	---
1996	349	15.4	94	3.8	8	7.5	0	0.0	13	10.4	3	---	7	9.9	5	7.0
1997	362	15.9	86	3.5	14	13.0	2	---	10	7.8	2	---	4	---	6	8.4
1998	351	15.2	105	4.2	11	10.1	3	---	14	10.5	0	---	12	16.5	4	---
1999	297	13.1	91	3.7	10	8.2	1	---	15	10.0	5	3.2	5	5.2	4	---
2000	264	11.8	92	3.7	12	9.0	3	---	16	9.7	6	3.5	3	---	2	---
TOTAL	2311		682		85		21		107		23		39		27	
MAF[4]	330	14.6[3]	97	3.9	12	10.7	3	2.4	15	11.1	3	2.1	6	7.3	4	4.9

1 Rate = (Frequency/Population)*100,000. Caution: Rates calculated on Frequency < 20 are unstable and therefore should be interpreted with caution
2 Calculations based on fewer than 5 events are excluded
3 Based on Mean Annual Frequency (MAF) and mean annual population; rate = (MAF/Mean annual Pop)*100,000.
4 Mean Annual Frequency
Note: Race/Ethnicity frequencies differ from previous publication due to re-distribution of Hispanic Ethnicity.

Table 3. Suicide by Method and Sex, Age 10+, MA, 1999-2000				
	Males		Females	
Method[1]	MAF[2]	Percent[3]	MAF	Percent
Suffocation	118	37.7	28	27.1
Firearm	100	31.9	11	10.6
Poisoning	50	16.0	50	48.3
Falls	14	4.5	5	4.8
Cutting/Piercing	9	2.7	4	3.9
Drowning/submersion	7	2.1	2	1.4
Other/unspecified	16	5.1	4	3.9
TOTAL[4]	312	100.0	104	100.0

1 See Appendix C for further description of methods
2 MAF = Mean Annual Frequency
3 Percent column may not add up to 100 due to rounding
4 MAF column may not add up to total due to rounding

Table 4. Hospital Discharges for Self-Inflicted Injury by Age and Sex, MA, 1999-2000						
	Males			Females		
Age	MAF[1]	2000 Pop.	Rate[2]	MAF	2000 Pop.	Rate
10--14	19	221168	8.6	65	210079	30.7
15--19	136	210460	64.6	300	205277	145.9
20--24	172	198756	86.3	254	205523	123.3
25--29	165	213376	77.3	245	220648	110.8
30--34	194	242386	80.0	280	250378	111.8
35--39	201	266507	75.2	325	274086	118.4
40--44	173	255838	67.6	325	266564	121.7
45--49	135	225029	60.0	192	236916	80.8
50--54	75	199205	37.4	124	212203	58.4
55--59	35	148841	23.2	60	161161	37.2
60--64	24	111504	21.5	30	124901	24.0
65--69	19	98882	18.7	25	117616	21.3
70--74	19	91416	20.8	24	119916	19.6
75--79	14	73829	18.3	21	111112	18.4
80--84	12	46464	25.8	15	84235	17.8
85+	10	30948	32.3	14	85744	15.7
TOTAL[3]	1400	2634609	53.1	2294	2886359	79.5

1 MAF = Mean Annual Frequency
2 Rate = (MAF/Population)*100,000. Caution: Rates calculated on MAF < 20 are unstable and therefore should be interpreted with caution.
3 MAF column may not add up to total due to rounding

Table 5. Hospital Discharges for Self-Inflicted Injury by Race, Sex, and Age, MA 1999-2000																
	White, non-Hispanic				Black, non-Hispanic				Hispanic				Asian/Pacific Islander			
	Males		Females		Males		Females		Males		Females		Males		Females	
	MAF[1]	Rate[2]	MAF	Rate	MAF	Rate	MAF	Rate	MAF	Rate	MAF	Rate	MAF	Rate	MAF	Rate
10--14	15	8.3	44	26.2	---[3]	---	8	53.7	---	---	8	38.3	---	---	---	---
15--19	101	61.1	226	140.4	9	63.4	23	169.6	9	40.9	25	126.3	---	---	10	95.6
20--24	128	84.4	182	115.9	18	137.7	19	134.6	14	62.5	22	103.6	---	---	14	103.1
25--29	129	77.7	188	109.6	11	87.0	13	94.3	12	56.7	22	105.6	---	---	7	43.4
30--34	143	73.0	226	111.8	16	113.7	16	105.1	24	120.3	20	98.9	---	---	5	35.0
35--39	161	71.9	261	113.6	11	74.0	16	105.0	16	92.6	28	150.9	---	---	---	---
40--44	144	65.1	279	121.5	5	39.0	19	140.0	13	98.8	11	74.3	---	---	---	---
45--49	117	59.1	171	82.3	8	80.2	8	68.2	5	52.3	6	56.3	---	---	---	---
50--54	63	35.1	112	59.4	---	---	---	---	---	---	5	53.4	---	---	---	---
55--59	31	23.1	55	38.1	---	---	---	---	---	---	---	---	---	---	---	---
60--64	21	20.3	27	23.6	---	---	---	---	---	---	---	---	---	---	---	---
65--69	16	17.0	24	21.8	---	---	---	---	---	---	---	---	---	---	---	---
70--74	17	19.2	22	19.2	---	---	---	---	---	---	---	---	---	---	---	---
75--79	14	19.3	19	18.0	---	---	---	---	---	---	---	---	---	---	---	---
80--84	10	22.5	15	18.0	---	---	---	---	---	---	---	---	---	---	---	---
85+	10	32.2	13	15.7	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL[4]	1115	50.0	1859	75.7	87	65.5	127	86.5	99	59.8	149	86.6	19	18.5	46	42.4
Overall Total	MAF = 2975 Rate = 63.5				MAF = 214 Rate = 76.5				MAF = 248 Rate = 73.5				MAF = 65 Rate = 30.7			

1 Mean Annual Frequency
2 Rate = (MAF/Population)*100,000. Caution: Rates calculated on Frequency < 20 are unstable and therefore should be interpreted with caution
3 Calculations based on fewer than 5 events are excluded
4 MAF column may not add up to total due to rounding

Table 6. Hospital Discharges for Self-Inflicted Injury by Method and Sex, Age 10+, MA, 1999-2000				
	Males		Females	
Method[1]	MAF[2]	Percent[3]	MAF	Percent
Poisoning	1037	74.0	1874	81.7
Cutting/Piercing	213	15.2	287	12.5
Suffocation	38	2.7	19	0.8
Falls	22	1.6	12	0.5
Drowning/submersion	---[4]	---	---	---
Firearm	8	0.5	---	---
Fire/burn	8	0.5	15	0.7
Motor vehicle	6	0.4	---	---
Other/unspecified	68	4.8	81	3.5
TOTAL[5]	1400	100.0	2294	100.0

1 See Appendix C for further description of methods
2 MAF = Mean Annual Frequency
3 Percent of total column may not add up to 100 due to rounding
4 Numbers less than 5 are suppressed to maintain confidentiality
5 MAF column may not add to total due to rounding

Table 7. Observation Bed Stays for Self-Inflicted Injury by Age and Sex, MA, 1999-2000						
	Males			Females		
Age	MAF[1]	2000 Pop.	Rate[2]	MAF	2000 Pop.	Rate
10--14	6	221168	2.5	24	210079	11.4
15--19	48	210460	22.6	101	205277	49.2
20--24	29	198756	14.3	71	205523	34.3
25--29	32	213376	15.0	61	220648	27.4
30--34	27	242386	10.9	69	250378	27.6
35--39	47	266507	17.6	67	274086	24.3
40--44	36	255838	14.1	80	266564	29.8
45--49	21	225029	9.1	43	236916	18.1
50--54	14	199205	6.8	22	212203	10.4
55--59	6	148841	4.0	10	161161	6.2
60--64	5	111504	4.0	7	124901	5.2
65--69	---[3]	98882	---	---	117616	---
70--74	---	91416	---	---	119916	---
75--79	---	73829	---	---	111112	---
80--84	0	46464	0.0	0	84235	0.0
85+	0	30948	0.0	---	85744	---
TOTAL[4]	271	2634609	10.3	558	2886359	19.3

1 MAF = Mean Annual Frequency
2 Rate = (MAF/Population)*100,000. Caution: Rates calculated on MAF < 20 are unstable and therefore should be interpreted with caution.
3 Calculations based on fewer than 5 events are excluded
4 MAF column may not add to total due to rounding

Table 8. Observation Bed Stays for Self-Inflicted Injury by Method and Sex, Age 10+, MA, 1999-2000				
	Males		Females	
Method[1]	MAF[2]	Percent[3]	MAF	Percent
Poisoning	235	86.5	511	91.6
Cutting/Piercing	24	8.9	37	6.6
Suffocation	5	1.7	---[4]	---
Firearm	---	---	0	0.0
Drowning/submersion	---	---	0	0.0
Falls	---	---	---	---
Other/unspecified	5	1.7	7	1.3
TOTAL[5]	271	100.0	558	100.0

1 See Appendix C for further description of methods
2 MAF = Mean Annual Frequency
3 Percent of total column may not add up to 100 due to rounding
4 Numbers less than 5 are suppressed to maintain confidentiality
5 MAF column may not add to total due to rounding

Table 9. Estimated Emergency Department Visits for Self-Inflicted Injury by Age and Sex, MA, 2000						
	Males			Females		
Age	Freq. [1]	2000 Pop.	Rate[2]	Freq.	2000 Pop.	Rate
10--14	92	221168	41.5	324	210079	154.4
15--19	496	210460	235.5	894	205277	435.3
20--24	404	198756	203.2	575	205523	279.9
25--29	343	213376	160.6	349	220648	158.1
30--34	263	242386	108.6	575	250378	229.8
35--39	361	266507	135.5	465	274086	169.7
40--44	220	255838	86.1	367	266564	137.8
45--49	159	225029	70.7	300	236916	126.6
50--54	67	199205	33.8	141	212203	66.3
55--59	49	148841	32.9	73	161161	45.6
60--64	12	111504	11.0	24	124901	19.6
65--69	6	98882	6.2	0	117616	0.0
70--74	12	91416	13.4	6	119916	5.1
75--79	6	73829	8.3	12	111112	11.0
80--84	12	46464	26.3	0	84235	0.0
85+	0	30948	0.0	0	85744	0.0
TOTAL	2503	2634609	95.0	4107	2886359	142.3

1 Actual frequency has been multiplied by a factor of 6.12 to calculate statewide estimates.
2 Rate = (Freq/Population)*100,000. Caution: Rates calculated on Freq < 20 are unstable and therefore should be interpreted with caution.

Table 10. Estimated Emergency Department Visits for Self-Inflicted Injury by Method and Sex, Age 10+, MA, 2000				
	Males		Females	
Method[1]	Frequency	Percent[2]	Frequency	Percent
Poisoning	1640	65.5	2883	70.2
Cutting/Piercing	588	23.5	1089	26.5
Suffocation	86	3.4	31	0.7
Drowning	12	0.5	0	0.0
Fall	12	0.5	12	0.3
Firearm	0	0.0	0	0.0
Other/unspecified	165	6.6	92	2.2
TOTAL	2503	100.0	4107	100.0

1 See Appendix C for further description of methods
2 Percent of total column may not add up to 100 due to rounding

APPENDIX D. Selected Suicide Prevention Organizations / Websites

American Academy of Child and Adolescent Psychiatry
www.aacap.org
3615 Wisconsin Avenue, NW
Washington D.C. 20016
phone: 202-966-7300
fax: 202-966-2891
The AACAP widely distributes information in an effort to promote an understanding of mental illnesses and remove the stigma associated with them, advance efforts in prevention of mental illnesses, and assure proper treatment and access to services for children and adolescents.

American Academy of Pediatrics (AAP)
www.aap.org/
141 Northwest Point Boulevard
Elk Grove Village, Illinois 60007-1098
phone: 847-434-4000
fax: 847-434-8000
This organization comprises 55,000 primary care pediatricians, pediatric medical specialists, and pediatrical surgical specialists. This site provides information on child health, advocacy, and safety. The site includes family-oriented publications, including one on adolescent development and suicide, and an on-line bookstore.

American Association of Suicidology
www.Suicidology.org
4201 Connecticut Ave., NW #408
Washington, D.C. 20008
phone: 202-237-2280
fax: 202-237-2282
Dedicated to the understanding and prevention of suicide. AAS promotes research, public awareness programs, education and training for professionals and volunteers, and serves as a national clearinghouse for information on suicide.

American Foundation for Suicide Prevention
www.afsp.org
120 Wall Street, 22nd Floor
New York, New York 10005
phone: 888-333-AFSP, 212-363-3500
fax: 212-363-6237
Funds research, education and treatment aimed at the prevention of suicide. Maintains a national directory of survivor support groups.

American Psychological Association
www.apa.org
750 First Street, NE
Washington, DC 20002
phone: 202-336-5500, 202-374-2721
fax: 202-336-5501
The largest scientific and professional organization representing psychology in the United States and the world's largest association of psychologists, APA works to advance psychology as a science, as a profession, and as a means of promoting human welfare.

The Brady Center to Prevent Gun Violence
www.HandgunControl.org
1225 Eye Street, NW, Suite 1100
Washington, DC 20005
phone: 202-289-7319
fax 202-408-1851
The Brady Center to Prevent Gun Violence is the education, legal advocacy, and research affiliate of Handgun Control, Inc. CPHV's national initiatives include prevention programs for parents and youth on the risks associated with guns, legal representation for gun violence victims, and outreach to the entertainment community to encourage the deglamorization of guns in the media. Together HCI and CPHV have developed a comprehensive plan to reduce gun injuries and deaths in America.

Centers for Disease Control and Prevention (CDC) National Center for Injury Prevention and Control
www.cdc.gov/ncipc/factsheets/suifacts/htm
Mailstop K60
4770 Buford Highway
Atlanta, GA 30341-3724
phone: 770-488-4362
fax: 770-488-4349
The National Center for Injury Prevention and Control (NCIPC) is working to raise awareness of suicide as a serious public health problem, and is focusing on science-based prevention strategies to reduce injuries and deaths due to suicide.

(continued on following page)

Center for School Mental Health Assistance
www.csmha.umaryland.edu
University of Maryland Baltimore
Department of Psychiatry
680 West Lexington St., 10th Fl
Baltimore, MD. 21201-1570
phone: 888-706-0980
fax: 410-706-0984
Provides leadership and technical assistance to advance effective interdisciplinary school-based mental health programs. The Center offers a forum for training, the exchange of ideas, and promotion of coordinated systems of care that provide a full continuum of services to enhance mental health, development and learning in youth.

Families for Depression Awareness
www.familyaware.org
118 Waltham Street, 2nd Floor
Watertown, MA 02472-4808
phone: 617-924-9383
fax: 617-924-9192
The mission of Family for Depression Awareness includes raising awareness of depression and reducing associated stigma, helping families recognize the symptoms and faces of depression, and motivating families to seek treatment and manage recovery.

The Gay, Lesbian and Straight Education Network
www.glsen.org
121 West 27th Street #804
New York, NY 10001
phone: 212-727-0135
fax: 212-727-0245
GLSEN strives to assure that each member of every school community is valued and respected, regardless of sexual orientation, by teaching the lesson of respect for all in public, private, and parochial K-12 schools. Founded as a small volunteer group in Boston in 1990, GLSEN led the fight that made Massachusetts the first state to ban discrimination against gay and lesbian students in public schools in 1993.

Health Resources and Services Administration (HRSA)
www.hrsa.dhhs.gov/
U.S. Department of Health and Human Services
Parklawn Building
5600 Fishers Lane
Rockville, Maryland 20857
phone: 301-443-2216, 888-275-4772
fax: 301-443-1246
HRSA directs national health programs which improve the health of the nation by assuring quality health care to underserved, vulnerable and special-needs populations and by promoting appropriate health professions' workforce capacity and practice, particularly in primary care and public health

Maine Youth Suicide Prevention Web Site
www.state.me.us/suicide
Department of Human Services
Bureau of Health Childhood Injury Prevention and Control Program
A.M.H.I. Complex, Marquardt Bldg.
159 State House Station
Augusta, ME 04333
phone: 1-800-698-3624
The Maine Youth Suicide Prevention Program is a project of the governor of Maine and the Maine Children's Cabinet. The site provides information and suicide prevention resources for youth in Maine, including a Maine Crisis Hotline (phone: 1-888-568-1112). The site also includes guidelines and information for schools and the media.

Massachusetts Substance Abuse Information and Education
www.helpline-online.com
95 Berkeley Street
Boston, MA 02116
phone:1-800-327-5050
fax: 617-536-8012
Trained volunteer information, education, and referral specialists available. Helpline services are free and confidential.

Massachusetts Violence Prevention Task Force
www.violenceprevention.com
250 Washington Street, 4th Floor
Boston, MA 02108
phone: 617-624-5486
fax: 617-624-5075
A broad-based, culturally inclusive collaboration of legislators, federal, state, local, and community organizations and institutions committed to working together to attain peace, health, and justice for everyone in our Commonwealth.

(continued on following page)

Mental Health Net
www.cmhc.com
570 Metro Place North
Dublin, OH 43017
phone: 614-764-0143, 800-528-9025
fax: 614-764-0362
Provides a comprehensive source of online mental health information, news, and resources.

National Depressive and Manic-Depressive Association
www.ndmda.org/suicide.html
730 N. Franklin Street, Suite 501
Chicago, Illinois 60610-7204
phone: 312-642-0049, 800-826-3632
fax: 312-642-7243
Seeks to educate patients, families, professionals, and the public on the nature of depressive and manic-depressive illness as treatable medical diseases; to foster self-help for patients and families; to eliminate discrimination and stigma; to improve access to care; and to advocate for research toward the elimination of these illnesses.

National Foundation for Depressive Illness Inc.
http://www.depression.org/
P.O. Box 2257
New York, New York 10116
phone: 1-800-239-1265
The Foundation was established in 1983 to provide public and professional information about Affective Disorders, the availability of treatment, and the urgent need for further research.

National Institute of Mental Health (NIMH)
www.nimh.nih.gov/research/suicide.htm
6001 Executive Boulevard, Rm. 8184 MSC 9663
Bethesda, MD 20892-9663
phone: 301-443-4513
fax: 301-443-4279
The NIMH Suicide Research Consortium is comprised primarily of NIMH scientists across the Institute who also administer research grants. The Consortium coordinates program development in suicide research across the Institute, identifies gaps in the scientific knowledge base on suicide across the life span, stimulates and monitors extramural research on suicide, keeps abreast of scientific developments in suicidology and public policy issues related to suicide surveillance, prevention and treatment, and disseminates science-based information on suicidology to the public, media, and policy makers.

The National Mental Health Information Center
www.nmha.org
National Mental Health Association
2001 N. Beauregard St., 12th floor
Alexandria, VA 22311
phone: 1-800-969-NMHA (6642)
fax: 1-888-836-6070
Provides referrals to mental health services and local Mental Health Association's educational material about mental illnesses and mental health to: the public; local mental health associations; corporations, or other mental health organizations.

National Mental Health Services Knowledge Exchange Network (KEN)
www.mentalhealth.org
P.O. Box 42490
Washington, D.C. 20015
phone: 1-800-789-2647
fax: 301-984-8796
Provides a user-friendly, "one stop" gateway to a wide range of resources on mental health services. The KEN database provides current information about CMHS technical assistance centers; Federal, state, and local mental health agencies; other national clearinghouses and information centers; mental health organizations and professional associations; and consumer and family advocacy organizations.

The Samaritans
www.samaritansofboston.org
654 Beacon Street, 6th Floor
Boston, MA 02215
phone: 617-536-2460, 617-247-0220
fax: 617-247-0207
The Samaritans of Boston is a non-denominations not-for-profit volunteer organization dedicated to reducing the incidence of suicide by befriending individuals in crisis and educating the community about effective prevention strategies. Other Massachusetts Samaritans chapters include: The Samaritans of Merrimack Valley, 978-688-0030; The West Suburban Samaritans, 508-872-1780; The Samaritans of Cape Cod and the Islands, 508-548-7999; and the Fall River / New Bedford Samaritans, 508-999-7267.

(continued on following page)

Stop Handgun Violence
www.stophandgunviolence.com
1 Bridge Street, Suite 300
Newton, MA 02458
phone: 877-SAFE-ARMS (723-3276)
Fax: 617-965-7308
Founded by a group of business people alarmed by the increasing number of gun deaths and injuries in America. Of the 38,800 gun-related deaths in 1995, over half were suicides or accidents and, therefore, seemed preventable. Stop Handgun Violence is dedicated to helping solve this epidemic of gun violence through education and awareness campaigns, community outreach, and corporate activism.

Substance Abuse and Mental Health Services Administration (SAMHSA)
www.samhsa.gov
Rm 12-105 Parklawn Building
5600 Fishers Lane
Rockville, MD 20857
phone: 301-443-4795
fax: 301-443-0284
Charged with improving the quality and availability of prevention, treatment, and rehabilitative services in order to reduce illness, death, disability, and cost to society resulting from substance abuse and mental illnesses.

Suicide Information and Education Centre
www.suicideinfo.ca/siec.htm
#201, 1615 - 10th Avenue S.W.
Calgary, Alberta, Canada T3C 0J7
phone: 403-245-3900
fax: 403-245-0299
Maintains a resource library with extensive information on suicide prevention, postvention, and intervention efforts and trends, and can provide information to develop successful suicide prevention, intervention, and postvention programs, including statistics, resource people, computer literature searches, and document delivery.

Suicide Prevention Advocacy Network (SPAN)
www.spanusa.org
5034 Odins Way
Marieta, GA 30068
phone: 888-649-1366
fax: 770-649-1366
A national grassroots, non-profit organization bridging all suicide prevention efforts to lower suicide rates (especially among young people) in the United States and worldwide. In October of 1998, SPAN hosted a National Planning Summit to develop a National Strategy for Suicide Prevention.

US Surgeon General's Office
www.surgeongeneral.gov
5600 Fisher's Lane
Room 18-66
Rockville, MD 20857
No phone or fax available
Has published 'The Surgeon General's Call to Action to Prevent Suicide' and 'Mental Health: A Report of the Surgeon General', and is developing a National Suicide Prevention Strategy. Publications are available online.

Washington State Youth Suicide Prevention Program
http://depts.washington.edu/ecttp/yspp/index.html
Youth Suicide Prevention Program University of Washington
Box 357263
Seattle, WA 98195
phone: 206-543-8552.
fax: 206-685-9551
Concerned citizens and health professionals banded together to form a "grass roots" movement in 1992 to address the problem of youth suicide, which is the second leading cause of death among youth aged 15-24 years in Washington State. The overall goals are to reduce youth suicide and suicidal behaviors in Washington, reduce the impact of suicidal behaviors on significant others, and improve access and availability of prevention services statewide.

(Disclaimer: The sites listed here have been identified based on their relevance to suicide prevention. Views expressed on the web sites are not necessarily those of the Massachusetts Department of Public Health or of the Injury Prevention and Control Program. When viewing a web site, please consider the source.)

This summary was produced by the Injury Prevention and Control Program of the Massachusetts Department of Public Health.

Injury Prevention and Control Program
250 Washington Street, 4th Floor
Boston, MA 02108
Phone: (617) 624-5070